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AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1 - 7 (canceled).

8 (currently amended). A [[The]] distance detection apparatus ~~according to claim 5, wherein~~ , comprising:

a wireless transmission system circuit that transmits a transmission signal after performing signal processing of the transmission signal;

a wireless reception system circuit that performs signal processing of a reception signal received from an object subjected to a distance measurement;

a distance detection section that measures a signal delay time in said wireless transmission system circuit and said wireless reception system circuit, and corrects a distance measurement value, that is obtained by measuring a distance to the object, using a signal delay time;

a first reference timer that generates a first reference timing;

a signal generation section that generates a periodic signal synchronized with the first reference timing to input the periodic signal to said wireless transmission system circuit as the transmission signal, wherein said distance detection section detects a first phase difference indicating a degree of a discrepancy of reception timing of the reception signal received from the object from the first reference timing, and detects the distance to the object using the first phase difference, the detected signal delay time, a second phase difference and a signal delay time being detected at the object, said distance detection section correcting the first phase difference using the detected signal delay time to obtain a corrected phase difference, the distance to the object being detected using the corrected phase difference and an informed corrected phase difference informed by the object, said distance detection section ~~obtains~~ obtaining the corrected phase difference in conformity with ~~the according~~ a formula [[,]] :

(corrected phase difference) = (first phase difference) - (detected signal delay time).

9 (currently amended). The distance detection apparatus ~~according to~~ of claim 8, wherein

said distance detection section detects the distance to the object in conformity with ~~the~~ a following formula [[,]] :

(distance) = K x ((corrected phase difference) + (informed corrected phase difference)) / 2

where K is a constant corresponding to the ~~light~~ velocity of light.

10 (canceled).

11 (currently amended). A [[The]] distance detection apparatus ~~according to claim 10, wherein~~ , comprising:

a wireless transmission system circuit that transmits a transmission signal after performing signal processing of the transmission signal;

a wireless reception system circuit that performs signal processing of a reception signal received from an object subjected to a distance measurement;

a distance detection section that measures a signal delay time in said wireless transmission system circuit and said wireless reception system circuit, and corrects a distance measurement value, that is obtained by measuring a distance to the object, using a signal delay time;

a first reference timer that generates a first reference timing;

a signal generation section that generates a periodic signal synchronized with the first reference timing to input the periodic signal to said wireless transmission system circuit as the transmission signal, wherein said distance detection section detects a first phase

difference indicating a degree of a discrepancy of reception timing of the reception signal received from the object from the first reference timing, and detects the distance to the object using the first phase difference, the detected signal delay time, a second phase difference and a signal delay time being detected at the object, said distance detection section correcting the first phase difference using the detected signal delay time to obtain a corrected phase difference, the distance to the object being detected using the corrected phase difference and an informed corrected phase difference informed by the object, a communication station having a second reference timer that generates a second reference timing, the signal delay time being measured at the object, a second phase difference indicating a degree of a discrepancy of the reception timing of the reception signal from the second reference timing being detected, the second phase difference being corrected using the signal delay time at the object, the corrected phase difference being transmitted as the informed corrected phase difference, said distance detection section determining a correction quantity for an adjustment of the first reference timer and the second reference timer using the corrected phase difference and the informed corrected phase difference, said distance detection section ~~determined~~ determining a correction quantity of the second reference timer on a basis of the first reference timer in conformity with ~~the following~~ a formula [[,]] :

(correction quantity of second reference timer) = ((corrected phase difference) - (informed corrected phase difference)) / 2 .

12 (currently amended). A [[The]] distance detection apparatus ~~according to claim 10, wherein~~ , comprising:

a wireless transmission system circuit that transmits a transmission signal after performing signal processing of the transmission signal;

a wireless reception system circuit that performs signal processing of a reception signal received from an object subjected to a distance measurement;

a distance detection section that measures a signal delay time in said wireless transmission system circuit and said wireless reception system circuit, and corrects a distance measurement value, that is obtained by measuring a distance to the object, using a signal delay time;

a first reference timer that generates a first reference timing;

a signal generation section that generates a periodic signal synchronized with the first reference timing to input the periodic signal to said wireless transmission system circuit as the transmission signal, wherein said distance detection section detects a first phase difference indicating a degree of a discrepancy of reception timing of the reception signal received from the object from the first reference timing, and detects the distance to the object using the first phase difference, the detected signal delay time, a second phase difference and a signal delay time being detected at the object, said distance detection section correcting the first phase difference using the detected signal delay time to obtain a corrected phase

difference, the distance to the object being detected using the corrected phase difference and an informed corrected phase difference informed by the object, a communication station having a second reference timer that generates a second reference timing, the signal delay time being measured at the object, a second phase difference indicating a degree of a discrepancy of the reception timing of the reception signal from the second reference timing being detected, the second phase difference being corrected using the signal delay time at the object, the corrected phase difference being transmitted as the informed corrected phase difference, said distance detection section determining a correction quantity for an adjustment of the first reference timer and the second reference timer using the corrected phase difference and the informed corrected phase difference, said distance detection section ~~determines~~ determining a correction quantity of the first reference timer on a basis of the second reference timer in conformity with ~~the following~~ a formula [[,]] :

(correction quantity of first reference timer) = ((informed corrected phase difference) - (corrected phase difference)) / 2 .

13 (currently amended). A [[The]] distance detection apparatus ~~according to claim 10, wherein~~ , comprising:

a wireless transmission system circuit that transmits a transmission signal after performing signal processing of the transmission signal;

a wireless reception system circuit that performs signal processing of a reception signal received from an object subjected to a distance measurement;

a distance detection section that measures a signal delay time in said wireless transmission system circuit and said wireless reception system circuit, and corrects a distance measurement value, that is obtained by measuring a distance to the object, using a signal delay time;

a first reference timer that generates a first reference timing;

a signal generation section that generates a periodic signal synchronized with the first reference timing to input the periodic signal to said wireless transmission system circuit as the transmission signal, wherein said distance detection section detects a first phase difference indicating a degree of a discrepancy of reception timing of the reception signal received from the object from the first reference timing, and detects the distance to the object using the first phase difference, the detected signal delay time, a second phase difference and a signal delay time being detected at the object, said distance detection section correcting the first phase difference using the detected signal delay time to obtain a corrected phase difference, the distance to the object being detected using the corrected phase difference and an informed corrected phase difference informed by the object, a communication station having a second reference timer that generates a second reference timing, the signal delay time being measured at the object, a second phase difference indicating a degree of a

discrepancy of the reception timing of the reception signal from the second reference timing being detected, the second phase difference being corrected using the signal delay time at the object, the corrected phase difference being transmitted as the informed corrected phase difference, said distance detection section determining a correction quantity for an adjustment of the first reference timer and the second reference timer using the corrected phase difference and the informed corrected phase difference, said distance detection section ~~detects~~ detecting the distance to the object in conformity with ~~the following~~ a formula after said distance detection section ~~performed~~ performs the adjustment of the first reference timer and the second reference timer ~~on a basis of the correction quantity for the adjustment;~~ :

$$(\text{distance}) = K \times (\text{corrected phase difference}),$$

where K is a constant corresponding to the ~~light~~ velocity of light.

14 (currently amended). A [[The]] distance detection apparatus ~~according to claim 10, wherein~~ , comprising:

a wireless transmission system circuit that transmits a transmission signal after performing signal processing of the transmission signal;

a wireless reception system circuit that performs signal processing of a reception signal received from an object subjected to a distance measurement;

a distance detection section that measures a signal delay time in said wireless transmission system circuit and said wireless reception system circuit, and corrects a distance measurement value, that is obtained by measuring a distance to the object, using a signal delay time;

a first reference timer that generates a first reference timing;

a signal generation section that generates a periodic signal synchronized with the first reference timing to input the periodic signal to said wireless transmission system circuit as the transmission signal, wherein said distance detection section detects a first phase difference indicating a degree of a discrepancy of reception timing of the reception signal received from the object from the first reference timing, and detects the distance to the object using the first phase difference, the detected signal delay time, a second phase difference and a signal delay time being detected at the object, said distance detection section correcting the first phase difference using the detected signal delay time to obtain a corrected phase difference, the distance to the object being detected using the corrected phase difference and an informed corrected phase difference informed by the object, a communication station having a second reference timer that generates a second reference timing, the signal delay time being measured at the object, a second phase difference indicating a degree of a discrepancy of the reception timing of the reception signal from the second reference timing being detected, the second phase difference being corrected using the signal delay time at the

object, the corrected phase difference being transmitted as the informed corrected phase difference, said distance detection section determining a correction quantity for an adjustment of the first reference timer and the second reference timer using the corrected phase difference and the informed corrected phase difference, said distance detection section ~~detects~~ detecting the distance to the object in conformity with ~~the~~ a following formula after said distance detection section ~~determined~~ determines the correction quantity of the second reference timer [[,]] :

(distance) = K x ((corrected phase difference) - (correction quantity of second reference timer)) ,

where K is a constant corresponding to the ~~light~~ velocity of light.

15 (currently amended). A [[The]] distance detection apparatus ~~according to claim 1, further~~ , comprising:

a wireless transmission system circuit that transmits a transmission signal after performing signal processing of the transmission signal;

a wireless reception system circuit that performs signal processing of a reception signal received from an object subjected to a distance measurement;

a distance detection section that measures a signal delay time in said wireless transmission system circuit and said wireless reception system circuit, and corrects a distance

measurement value, that is obtained by measuring a distance to the object, using a signal delay time;

a first reference timer that generates a first reference timing; and

a signal generation section that generates a periodic signal synchronized with the first reference timing to input the periodic signal to said wireless transmission system circuit as the transmission signal [[;]] , wherein

said distance detection section detects a first phase difference indicating a degree of a discrepancy of reception timing of a reflection wave of the transmission signal reflected by the object from the first reference timing, and detects the distance to the object in conformity with ~~the~~ a following formula [[,]] :

(distance) = K x ((first phase difference) - (detected signal delay time)) / 2 ,

where K is a constant corresponding to the ~~light~~ velocity of light .

16-22 (canceled).